

ACTIVE SUBSTANCE EVAPORATORD E S C R I P T I O N

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## OBJECT OF THE INVENTION

10 The present invention relates to a device for evaporating active substances, with the special characteristic of allowing a dual use, specifically use with two different types of containers of active substances, in tablets or in trays.

15 Thus, the object of the invention is to obtain a standardisation of the device so that the same evaporator device can be operated with either of the two aforementioned conventional presentations of the active substance, this is, as a tablet or as a tray.

20 A second object of the invention is to simplify the means used by the device to indicate its temperature.

25 Yet another object of the invention is to provide the device with safety means to make it difficult for children to extract the tablets or trays containing the active substance.

## BACKGROUND OF THE INVENTION

30 Evaporator devices for active substances are already known, specifically electrical evaporators for insecticides, which are based on the use of a PTC electrical resistance that acts on a heating surface next to which is placed the insecticide product, such as those  
35 described for example in Spanish patents 9600482 and

9601197.

5 In addition, the insecticide product is generally commercialised in at least two different types of containers: tablets of paper or the like, duly soaked for a one-day protection; or trays with insecticide gel, closed by a semi-permeable membrane for a longer-lasting protection.

10 According to each type of container for the insecticide product there are currently two different versions of electrical evaporator, within each specific solution, adapted to one or the other container.

15 On another hand, conventional evaporators have an intermittent operation and incorporate an indicator lamp connected in parallel to the PTC, which has the obvious purpose of indicating to the user whether or not the evaporator is operating.

20 This solution presents a two-folded drawback: on one hand, it actually does not indicate whether the PTC is warm, but instead indicates is whether it is connected, so that the evaporator could be very hot at the end of an operational cycle of the PTC resistor, yet the lamp will be off. Furthermore, the lamp requires electrical cables for its connection to the power supply, hindering the assembly of the various parts making up the device and therefore increasing the cost of production.

30 Moreover, when the evaporator is disconnected from the power supply by the user to replace the cartridge the device may remain warm due to its heat capacity, yet obviously any indicator lamp will cease to function.

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## DESCRIPTION OF THE INVENTION

The evaporator for active substances disclosed by the invention solves the aforementioned drawbacks in a fully satisfactory manner, in each and every aspect mentioned above.

For this, more specifically and in accordance with one of the characteristics of the invention, the body of the device housing the heating means is structured such that it can receive with a detachable construction a support for the active substance, with the particularity that established in said support are two housings used selectively, one being adapted in size and shape to the conventional tablets and another similarly adapted to the gel trays, using the most suitable one in each case and leaving both the tablet and the gel tray properly facing the heating surface of the body behind which is placed the PTC resistor.

More specifically, the base body has a U-shaped profile, considerably flattened, between the side wings of which is coupled by plugging or sliding the aforementioned support for the active substance.

According to another characteristic of the invention and replacing the conventional indicator lamp, at the wing of the base body constituting the front visible face of the device, in any suitable location therein, is established any pattern with thermochrome paint such that said pattern will change in colour at the temperature under which the evaporator can be handled safely. The thermochrome paint can be applied directly on the casing of the device, on a sticker label, or it can even consist of a complementary part made of thermochrome plastic; the use of any of these solutions or any other

deemed suitable does not affect the essence of the invention.

According to another characteristic of the invention, the device includes safety means meant to make it difficult for children to remove the tablets or trays holding the active substance, said means being based on locking teeth defined in the inner wall of the casing and on the side walls of the sliding support, so that it is necessary to press simultaneously on both sides of the casing and specifically on opposite points of it in order to release and allow the outwards displacement of the aforementioned container for the tablet of active substance or the corresponding tray, so that a stop provided on each side face of the support walls can lock in a rear protrusion of each side of the inner wall of the device casing; the first case therefore corresponds to the closed position of the device and the second to the extraction position of the support of the tablet or tray with the active substance, the extraction being naturally limited by the locking of the aforementioned corresponding stop and protrusion.

#### DESCRIPTION OF THE DRAWINGS

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As a complement of the description being made and in order to aid a better understanding of the characteristics of the invention, in accordance with an example of a preferred embodiment, a set of drawings is accompanied as an integral part of the description where for purposes of illustration only and in a non-limiting sense the following is shown:

Figure 1 shows a front perspective view of an evaporator device for active substances constructed

according to the present invention.

Figure 2 shows a rear perspective view of the same device.

5           Figure 3 shows a similar representation to figure 1 in which the thermal indication pattern has changed colour.

10           Figure 4 shows again a perspective view similar to figure 1 in which the support for the active substance is shown with its greater part uncoupled from the base body and supporting a tablet inside it.

15           Figure 5 shows a representation similar to that of figure 4 where the aforementioned support incorporates an insecticide gel tray.

20           Figure 6 shows a sectional view of the device in a closed position, showing an enlarged inset of the locking established by the complementary teeth of the sliding support and the casing.

25           Figure 7 shows, finally, another sectional enlarged inset of the device represented in the previous figure, in an end extraction position for the support of the tablet or tray with the active substance, the extraction being limited by the corresponding locking between the stop teeth established in both bodies (the casing and the support).

#### 30   **PREFERRED EMBODIMENT OF THE INVENTION**

35           In view of these figures it is seen that the evaporator device taught by the invention comprises a casing (1), in which as is conventional is integrated a classical electrical plug (2) for direct connection of the

device to an electric socket, attached for example to a wall, through which is powered a PTC type heating resistance, not shown in the figures, that transforms electrical energy into heat that is applied to a heating surface (3), next to which will be placed the active substance used in each case.

As such, the relatively flat base body (1), has a U-shaped profile such that its rear wing (4), provided with ventilation grilles (5), is where the power supply circuit of the PTC and the heating surface (3) are established, while its front wing (6) is also provided with a grille (7) for aeration of the hollow interior of the base, in which is housed a support (8), preferably by plugging or insertion, which when assembled establishes a surface continuity with the base (1), as seen particularly in figure 1, the support (8) in turn being provided with ventilation orifices (9), but particularly being provided with a recess or housing (10) inside which is established a smaller second housing (11), which is adapted in size and shape to the classic insecticide tablets (12), while the larger housing (10) is in turn adapted in size and shape to the trays (13) closed with a semipermeable membrane that contain insecticide products in a gel form; figures 4 and 5 show the indistinct use of the same evaporator device with the two different types of format for the product or active substance.

As a complement of the described structure, in the lateral wing (6) of the base body (1) corresponding to the front face of the evaporator device in a ready-to-use situation, is established a pattern (14) that could be the brand name of the product, made with thermochrome paint so that said pattern adopts a certain colour when the evaporator device is cold, such as in the situation of

figure 1, and changes colour when it exceeds a specified heat level, as in the case of figure 3, thereby allowing the user to know the true temperature level of the evaporator regardless of whether the PTC is electrically connected, as well as eliminating the electrical power supply cabling of the traditional electrical visual indicators.

The device includes safety means to make it difficult for children to extract the support (8) where the tablet or tray of the corresponding active substance is housed. Specifically, these safety means consist of a tooth (15) provided on the front end of each of the lateral walls (8') of the support (8) that slide inside the casing (1), whose teeth (15) are designed to lock in the closed position shown in figure 6 in other complementary teeth (16) provided for this purpose in the inner part of the casing (1), so that in the locked position of said figure even if the support (8) is pulled outwards it will not move, unless applying an inwards pressure applied on the lateral areas (17) of the casing (1), which will cause a deformation of the casing and the release of the teeth (15) and (16), allowing to pull the support (8) backwards and thus slide it to reveal the tablet or tray containing the active substance.

The backwards displacement of the support (8) is limited by the stop defined by a protrusion (18) of the lateral walls (8') of the support (8), clashing against the protrusion or protrusions (19) provided for such purpose on the inner walls (20) as sliding guides for the support (8), and specifically for its side walls (8').